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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/595,827

Applicant(s)

HABETHA ET AL.

Examiner

BENJAMIN ELLIOTT

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-18 have been examined and are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Regarding claims 4 and 14, the phrase "i.e." renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

4. Claim 16 provides for the use of a method as claimed in claim 1 stating "a method as claimed in claim 1 on a transmission system employing UMTS" but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 16 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1, 3, 4, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 7,310,670 B1 to Walbeck et al. (hereinafter "Walbeck").

As per Claim 1, Walbeck discloses **a method for access to a medium by a multi-channel device, which medium comprises a transmission system having at least two channels on which a message to be transmitted comprises at least a preamble and a header (PR) plus a succeeding control or data section** (Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver. Col. 20, lines 42-48. Raw data packets are transmitted from source nodes in the system. Figure 9; Col. 21, lines 30-41. Raw data packets contain: a preamble, a source and destination field, a control field, and a payload field. The source and destination fields are part of the MAC header.), **characterized in that the preamble and header (PR) of the**

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message are repeated on all the channels (Col. 43, lines 64-67. The source node can send the same information across many or all channels.).

As per Claim 3, Walbeck discloses **a method as claimed in claim 1, characterized in that the messages to be transmitted are of the request-to-send (RTS), clear-to-send (CTS), acknowledgement (ACK) or data (DATA) type** (Col. 22, lines 17-18. A DACK packet (Direct ACKnowledgement) is sent to a receiving node in response to receiving a packet.).

As per Claim 4, Walbeck discloses **a method as claimed in claim 1, characterized in that the multi-channel device operates to standard IEEE 802.11, i.e. 802.11e or 802.11n having a medium access control (MAC) protocol and at least some of the items of information belonging to the MAC protocol are repeated on all the channels** (Figure 2; Col. 8, lines 18-24. The physical layer of the OSI model of the network concerns electrical and mechanical connections as in Media Access Control (MAC). Figure 9; Col. 21, lines 30-41. Raw data packets contain: a preamble, a source and destination field, a control field, and a payload field. The source and destination fields are part of the MAC header. Col. 43, lines 64-67. The source node can send the same information across many or all channels.).

As per Claim 17, Walbeck discloses **a multi-channel device that is intended for accessing a medium that comprises a transmission system having at least two channels, the multi-channel device being intended to perform the method claimed in claim 1 for the purpose of accessing the medium** (Figure 20 shows a multi-channel medium connecting a multi-channel

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transmitter to a multi-channel receiver. Col. 20, lines 42-48. Raw data packets are transmitted from source nodes in the system. Figure 9; Col. 21, lines 30-41. Raw data packets contain: a preamble, a source and destination field, a control field, and a payload field. The source and destination fields are part of the MAC header.).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any

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inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 6,215,798 B1 to Carneheim et al. (hereinafter "Carneheim").

As per Claim 2, Walbeck discloses the preamble and header (as part of the raw data packet) are repeated across multiple channels, but is silent on the preamble and header being repeated in parallel.

However, Carneheim discloses **a method as claimed in claim 1, characterized in that the preamble and header (PR) are repeated in parallel on all the channels** (Carneheim: Col. 3, lines 45-50. Data frames are sequentially assigned to a plurality of channels. Data frames aligned in the same sequential position in the plurality of channels form a data frame set.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include repeating the preamble and header information in parallel channels as taught by Carneheim to reduce the amount of parallel channel information into each data

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stream which increases overhead and reduces bandwidth (Carneheim: Col. 2, lines 7-10).

As per Claim 18, Walbeck discloses **a network that has a transmission system having at least two channels and that has at least one multi-channel device as claimed in claim 17** (Walbeck: Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver.), but is silent on the network being wireless.

However, Carneheim discloses the use of **wireless** telephones in communication with public switched telephone networks via base station controllers and mobile switching centers (Carneheim: Col. 3, lines 64-67 and Col. 4, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a wireless network as taught by Carneheim to facilitate the synchronization of data frames through parallel channels in a mobile telephone system (Carneheim: Col. 2, lines 21-25).

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 7,016,676 B2 to Walke et al. (hereinafter "Walke").

As per Claim 5, Walbeck discloses **a method as claimed in claim 1, characterized in that the medium access takes place under standard IEEE 802.11, i.e. 802.11e or 802.11n** (Walbeck: Figure 2; Col. 8, lines 18-24. The

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physical layer of the OSI model of the network concerns electrical and mechanical connections as in Media Access Control (MAC).

Walbeck is silent on setting the NAV according to information received in the RTS/CTS data packets.

However, Walke discloses **the RTS, CTS and ACK control frames are transmitted on all the channels, and single-channel devices set their network allocation vectors (NAVs) on the basis of the information in the RTS/CTS data packets** (Walke: Figure 2; Col. 1, lines 43-62. The RTS packet is sent and waits for a CTS packet. All other stations in the coverage area set their NAV and don't transmit until an ACK is sent.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to incorporate monitoring by way of NAVs as taught by Walke to support self-organizing ad-hoc networks and allow support of multimedia applications (Walke: Col. 1, lines 49-53).

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 7,415,046 B2 to Beckman et al. (hereinafter "Beckman").

As per Claim 16, Walbeck is silent on the transmission system using UMTS (Universal Mobile Telecommunication System).

However, Beckman **discloses use of a method as claimed in claim 1 on a transmission system employing the Standard Universal Mobile**

Telecommunication System (UMTS) (Beckman: Col. 9, lines 61-63. Data is transmitted through channels over an air interface using UMTS.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include transmitting information based on UMTS as taught by Beckman to easily establish a point-to-point connection between layer 1 and layer 2 devices, as UMTS utilizes the air interface comprising layer 1 and layer 2 (of the OSI model). This recognizes the use of UMTS along side the medium access control (MAC) of the claimed invention (Beckman: Col. 1, lines 30-58).

13. Claims 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 4,797,879 to Habbab et al. (hereinafter "Habbab").

As per Claim 6, Walbeck discloses **a method for access to a medium by a multi-channel device, which medium comprises a transmission system having at least two channels that the multi-channel device intends to call upon for transmission** (Walbeck: Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver.), **characterized by the steps of scanning by the multi-channel device of all the channels to be called upon for transmission** (Walbeck: Col. 43, lines 11-24. All channels have assigned to them fragments of packets for transmission.

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First, all good channels (channels that do not lose fragments) are assigned, and then bad channels (channels wherein fragments are lost) are assigned fragments until all channels are being used. This step of assigning fragments to channels correlates to scanning available channels.), **finding that a single one of these channels is idle or that a back-off by the device itself is underway on this channel** (Walbeck: Figure 6b; Col. 18, lines 4-8. A transmit status is examined to be "ready" or "idle".), **further scanning of the other channels to be called upon and blocking or reserving thereof on finding that the channel concerned is idle or that a back-off is underway thereon** (Walbeck: Figure 6b shows the flow diagram looping if the transmission is idle. Figure 7 shows the steps of "polling the nodes for entry into the medium.).

Walbeck is silent on blocking these channels (idle or back-off).

However, Habbab discloses **blocking of this channel to other devices by the multi-channel device** (Habbab: Col. 5, lines 5-9. The transceiver uses CSMA protocol to sense channels that are idle. The channel is blocked or jammed to ensure that the data channel is reserved.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include blocking idle channels as taught by Habbab to achieve high-speed data rates in local area networks (Habbab: Col. 1, lines 64-67).

As per Claim 7, Walbeck is silent on the blocking is performed by the multi-channel device and the receiver, both sending reserve messages.

However, Habbab discloses **a method as claimed in claim 6, characterized in that the blocking of the channel is performed by the multi-channel device and the receiving device, each of which emits a reserving message** (Habbab: Col. 5, lines 16-34. Upon receiving notification that a channel is idle both the transceiver and another transceiver (receiver at the reception end of a transmission) send a jamming signal.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include blocking idle channels as taught by Habbab to achieve high-speed data rates in local area networks (Habbab: Col. 1, lines 64-67).

As per Claim 9, Walbeck does disclose channel grouping (Walbeck: Col. 43, lines 64-67. The source node can send the same information across many or all channels.), but is silent on releasing blocked channels for transmission.

However, Habbab discloses **a method as claimed in claim 7, characterized in that multi-channel device carries out its transmission with channel grouping, on all the channels that it has itself previously blocked** (Habbab: Figures 1 and 5; Col. 5, lines 9-16. After determining that a channel is idle, and then waiting for a specific time period related to the transmission of a control packet, data packets can then be sent. Figure 1 shows multiple transceivers of the invention allowing for parallel channels to transmit a packet as seen in Figure 5.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include

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unblocking channels for transmission as taught by Habbab to alleviate interfacing problems by providing a multi-channel system with a set of parallel channels (Habbab: WDM (wavelength division multiplexing); Col. 2, lines 1-3), and provide protocols to provide for high data rates (Habbab: Col. 1, lines 64-67).

As per Claim 10, Walbeck discloses **a method as claimed in claim 6, characterized in that the blocking of the channel is performed by starting the transmission by the multi-channel station on the single channel, in which case the transmission can be made with or without an RTS-CTS mechanism** (Walbeck: Figure 23; Col. 38, lines 60-62. The single channel receiver receives transmissions through only one of the channels of the multi-channel medium.).

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck and Habbab and further in view of US Patent 7,016,676 B2 to Walke et al. (hereinafter "Walke").

As per Claim 8, Walbeck discloses sending DACK messages, but is silent on transmitting RTS or CTS messages. Habbab discloses the use of CSMA, which utilizes RTS and CTS, but is silent on having other devices setting their NAVs.

However, Walke discloses **a method as claimed in claim 7, characterized in that the reserving message is implemented in the form of**

RTS and CTS frames that are transmitted by the following steps

- transmission of an RTS frame on the free channel by the multi- channel device, so that devices in the area surrounding the multi- channel device that is transmitting will set their NAVs, transmission of a CTS frame on the free channel by the receiving device, so that stations in the area surrounding the receiving station will set their NAVs (Walke: Figure 2; Col. 1, lines 43-62. The RTS packet is sent and waits for a CTS packet. All other stations in the coverage area set their NAV and don't transmit until an ACK is sent.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck and Habbab to incorporate monitoring by way of NAVs as taught by Walke to support self-organizing ad-hoc networks and allow support of multimedia applications (Walke: Col. 1, lines 49-53).

15. Claims 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 7,289,529 B2 to Sherman (hereinafter "Sherman").

As per Claim 11, Walbeck discloses **a method for access to a medium by a multi-channel device, which medium comprises a transmission system having at least two channels that the multi-channel device intends**

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to call upon for transmission (Walbeck: Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver.).

Walbeck is silent on a third device blocking the channels.

However, Sherman discloses the method **characterized in that a third device (independent of the transmitter and receiver) reserves or blocks the channels in the channel group for the multi-channel device that wishes to transmit** (Sherman: Col. 6, lines 21-40. A point coordination function or hybrid coordination function work as part of the reserve protocol for contending transmissions to gain access to the wireless medium (by way of the CSMA protocol)).).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a third device for reserving channels as taught by Sherman to optimize performance by the hybrid coordinator for efficient use of the medium (Sherman: Col. 2, lines 14-20).

As per Claim 12, Walbeck is silent on the third device having control over medium access for the plurality of channels.

However, Sherman discloses **a method as claimed in claim 11, characterized in that the third device is responsible for coordinating medium access to a plurality of channels** (Sherman: Col. 4, lines 43-44. The PCF (point coordination function) makes use of PIFS (PCF interframe space) to seize and maintain control of the medium.).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a third device for reserving channels as taught by Sherman to optimize performance by the hybrid coordinator for efficient use of the medium (Sherman: Col. 2, lines 14-20).

As per Claim 14, Walbeck discloses **a method as claimed in claim 11, characterized in that the medium access is performed under standard IEEE 802.11, i.e. 802.11e or 802.11n** (Walbeck: Figure 2; Col. 8, lines 18-24. The physical layer of the OSI model of the network concerns electrical and mechanical connections as in Media Access Control (MAC). Figure 9; Col. 21, lines 30-41. Raw data packets contain: a preamble, a source and destination field, a control field, and a payload field. The source and destination fields are part of the MAC header. Col. 43, lines 64-67. The source node can send the same information across many or all channels.)

Walbeck is silent on the third device.

However, Sherman discloses **said third device is the hybrid coordinator or point coordinator** (Sherman: Col. 6, lines 21-40. A point coordination function or hybrid coordination function work as part of the reserve protocol for contending transmissions to gain access to the wireless medium (by way of the CSMA protocol).).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a third device for reserving channels as taught by Sherman to optimize

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performance by the hybrid coordinator for efficient use of the medium (Sherman: Col. 2, lines 14-20).

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck and Sherman, and further in view of Habbab.

As per Claim 13, Walbeck in combination with Sherman disclose a **method as claimed in claim 11 characterized in that in the event of individual channels in the channel group not becoming free simultaneously, the third device causes, alternatively** (Walbeck: Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver. Sherman: Col. 6, lines 21-40. A point coordination function or hybrid coordination function work as part of the reserve protocol for contending transmissions to gain access to the wireless medium (by way of the CSMA protocol), but are silent on **(a) one channel or individual channels to be blocked until such time as all the channels in the channel group have become free, or (b) a channel that has become free to be assigned immediately to the multi-channel device that wishes to transmit.**

However, Habbab discloses **a channel that has become free to be assigned immediately to the multi-channel device that wishes to transmit** (Habbab: Figures 1 and 5; Col. 5, lines 9-16. After determining that a channel is

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idle, and then waiting for a specific time period related to the transmission of a control packet, data packets can then be sent.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck and Sherman to include in the third device the option to immediately assign a channel for transmission as taught by Habbab to alleviate interfacing problems by providing a multi-channel system with a set of parallel channels (Habbab: WDM (wavelength division multiplexing); Col. 2, lines 1-3), and provide protocols to provide for high data rates (Habbab: Col. 1, lines 64-67).

17. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck and Sherman, and further in view of Carneheim.

As per Claim 15, Walbeck is silent on a hybrid or point coordinator transmitting beacons.

However, Sherman discloses **a method as claimed in claim 14, characterized in that the point coordinator or hybrid coordinator transmits what is called beacons** (Sherman: Col. 6, lines 41-43. Beacon frames are sent by the hybrid coordination function by way of an access point.).

Sherman is silent on **transmitting the beacons in parallel**.

However, Carneheim discloses data frames being transmitted in parallel (Carneheim: Col. 3, lines 45-50. Data frames are sequentially assigned to a

plurality of channels. Data frames aligned in the same sequential position in the plurality of channels form a data frame set.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck and Sherman to send beacon messages, which contain information relating to the channel and the network (Sherman: Col. 6, lines 43-45) through a plurality of sequential channels as taught by Carneheim to reduce the amount of parallel channel information into each data stream which increases overhead and reduces bandwidth (Carneheim: Col. 2, lines 7-10).

Conclusion

18. Prior art made of record not relied on include:

US patent 6,240,140 B1 to Lindbergh et al. discloses a system and method for aggregating channels having low latency and overhead.

US Patent 7,092,374 B1 to Gubbi discloses architecture for a wireless node using MAC service data units.

US Patent 7,027,462 B2 to Benveniste discloses random MAC methods with back-off adaptation.

US Patent Publication US 2003/0091066 A1 to Choi et al. discloses hybrid Coordinator recovery and back-off rules.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN ELLIOTT whose telephone number is (571)270-7163. The examiner can normally be reached on Monday thru Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. E./

Examiner, Art Unit 2419

/Hassan Kizou/

Supervisory Patent Examiner, Art Unit 2419